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Briefing Report to the Chairman,
Committee on Armed Services,
House of Representatives

March 1986

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DOD MANPOWER

Information on the Accuracy of Defense Manpower Requirements



ORIGINAL



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20549

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

March 26, 1986

B-197077

The Honorable Les Aspin
Chairman, Committee on Armed Services
United States House Representatives

Dear Mr. Chairman:

On April 18, 1985, you requested that we conduct a comprehensive analysis of defense manpower-requirements programs to assist your committee in assessing the accuracy of the services' stated manpower needs. On February 21, 1986, we met with your staff to discuss our progress and findings thus far. Because of the possible impact of the Balanced Budget and Emergency Deficit Control Act of 1985 on defense manpower levels, your staff requested that we supply the Committee with information on our results to date for use in the markup of the fiscal year 1987 defense budget. Specifically, they asked us to address two main questions:

- What is the likelihood that the services' manpower requests actually understate their needs?
- What indications do we have of possible overstatement of manpower needs?

Appendix I addresses these questions by summarizing information from several audits. Some audits have been completed and reports issued; summaries of these appear as appendixes II through V. Others are still ongoing. It is important to note that results of ongoing work are tentative and subject to change as more information becomes available.

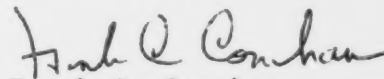
While we did not get DOD's official views on this report, we did discuss a draft with officials from the Office of the Secretary of Defense and the military services. Their comments have been incorporated where appropriate.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days from the date of its issuance. At that time, we will send copies to the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs,

House and Senate Committees on Appropriations, and Senate Committee on Armed Services; the Director, Office of Management and Budget; and the Secretaries of Defense, the Army, the Navy, and the Air Force. Copies will also be made available to other interested parties upon request.

If we can be of further assistance, please call Martin M Ferber, Associate Director for Manpower, Reserve Affairs and Logistics on 275-5140.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Frank C. Conahan". The signature is fluid and cursive, with the first name "Frank" and last name "Conahan" clearly distinguishable.

Frank C. Conahan
Director

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DOD MANPOWER REQUIREMENTSOBJECTIVE, SCOPE, AND METHODOLOGY

The objective of our manpower-requirements analyses has been to assess the degree to which the services' policies and procedures for determining manpower needs accurately identify the quantity and quality of manpower needed for national defense. Our analyses, therefore, have been focused on providing an understanding of the soundness and rigor of the requirements-determination process. However, in the course of our analyses, we have also looked for ways to quantify the impact of any problems we identify. The objective of this report is to provide information collected during our recently completed and ongoing manpower-requirements reviews which is relevant to assessing the accuracy of DOD manpower-requirements statements.

The scope of this report covers audit work we performed or are performing in each of the military services from 1982 to the present and is generally focused on enlisted manpower requirements.

The methodology employed in each of our audits has varied according to the specific program. In general, however, each audit has involved interviews with responsible officials; reviews of records, correspondence, and other documentation; and--where possible--actual observations of manpower validation surveys. It is important to note the limitations that are specified for each service due to either the interim nature of the results or the inability to accurately project our sample results across the entire service.

All our work has been conducted in accordance with generally accepted government auditing standards.

NAVY MANPOWER REQUIREMENTS

The Navy uses separate programs for determining requirements for each of three manpower areas--shore-based functions, ships, and aircraft squadrons. We have completed our audit work in all three programs, with a report on the shore program having been issued on March 7, 1985 (GAO/NSIAD-85-43), a report on the ship-manpower program being issued on March 27, 1986 (GAO/NSIAD-86-49), and a draft report on the squadron-manpower program currently being prepared.

Shore Manpower

Over two-thirds of the Navy's military and civilian work force are in shore-based jobs. Our report on the Navy's shore-manpower program found that a number of improvements were needed. (See app. II for a summary.)

The heart of the Navy's shore requirements-determination process involves the application of staffing standards, which are mathematical equations that relate manpower requirements to work load. We found, however, that standards existed for only between one-third and one-half of the Navy's approximately 600,000 shore-based positions. We also found that the standards which had been developed were not based on methods-improvement studies to ensure that unnecessary, duplicative, or inefficient procedures were not being included under the standards.

In its comments on that report, DOD generally concurred with our findings and recommendations and outlined Navy actions to address most of the problems. One of the Navy's actions involved the formation of an umbrella manpower-management program, the Navy Manpower Engineering Program (NAVMEP), which incorporated the Shore Manpower Document (SHMD) program, which replaced the previous shore-requirements program. The NAVMEP program set a goal of 100-percent coverage by standards within 2 years, which Navy officials recently said has been achieved.

As noted above, in 1985, we reported that the Navy's manpower standards covered only between one-third and one-half of shore-based positions. Consequently, we question whether the Navy could have developed standards for the remaining portion of the shore-establishment positions without resorting to the use of less rigorous procedures, which could compromise the credibility of the standards and the resulting requirements. Therefore, it is possible that the bulk of the Navy's shore requirements continue to be generated by processes that lack adequate rigor. However, because the system for determining shore-based requirements is still developing, we cannot determine whether the requirements generated are over- or understated.

Ship Manpower

A report on the Navy's Ship Manpower Document (SMD) program is being issued March 27, 1986. (See app. III for a summary.) The SMD program was established in 1966 and is used to establish the manpower requirements for an estimated 171,000 positions. The SMD program uses a manpower modeling system whereby basic assumptions about how the Navy plans to operate in wartime and a ship's required combat capability are translated into a conceptual model which, in turn, is simulated on computers.

We found a number of problems in the methodology being used in the SMD program and the degree to which the assumptions built into the SMD model actually reflect how the Navy plans to operate in wartime. For example, we found that the SMD program assumes that sailors will be provided more free time during wartime than is actually likely to occur. We concluded that, on balance, the net effect appears to be an overstatement of needs. For illustrative purposes, we recomputed the SMDs for two sample ships, modifying the model's assumptions to

- eliminate time allowances added to basic times where the Navy could not demonstrate that those time allowances were not already included,
- change the way in which at-sea preventive maintenance and facilities maintenance work loads were allocated, and
- reduce the amount of Sunday free time sailors would have during wartime.

Using these modified assumptions, we found that the manpower requirements could be reduced by 19 positions (6 percent) on the USS Peterson (a Spruance-class destroyer) and 48 positions (12 percent) on the USS Hoel (an Adams-class destroyer). While statistically accurate projections to the aggregate Navy fleet cannot be made based on these two ships, it is possible that similar reductions could occur throughout the fleet since the SMDs for all Navy surface ships are determined through the same model.

Reductions in requirements do not necessarily equate to cuts in end-strength since the services do not generally receive funding from the Congress for all of their requirements. However, since the services' manpower requirements form the basis for their personnel budget requests, which, in turn, form the basis for the Congress's authorization of personnel end-strength, it is likely that a significant portion of any reduced manpower requirements could be either available for reallocation to areas of documented need to improve readiness or eliminated without harming readiness.

DOD disagreed strongly that the assumptions we used in our illustrative examples would be valid adjustments to the present SMD model. DOD did agree, however, that certain refinements to the SMD model are appropriate, and stated that these have been or will be implemented to the maximum cost-effective extent possible.

Aircraft Squadron Manpower

The Navy's Squadron Manpower Document (SQMD) program was established in 1969 and covers about 85,000 positions--14,000 officers and 71,000 enlisted. We have completed our audit work on this program and are in the process of preparing a draft report. DOD and the Navy have not yet had an opportunity to comment on our findings.

Most squadron-manpower requirements are determined through the use of statistical formulas or predetermined factors, such as maintenance hours per flight hour, which convert various types of work load to manpower requirements. However, we found that almost 19 percent of all aircraft squadron requirements are not covered by any staffing standards.

With regard to the requirements covered by standards, we found a number of problems. In particular, we found that

- efficiency reviews are not performed, resulting in the possible inclusion in the standards of unnecessary, duplicative, or inefficient work;
- processes for validating maintenance work load do not ensure data accuracy;
- questionable methods are being used to calculate work load; and
- work-load allowances are of questionable validity and are being applied inappropriately.

On the basis of these and other problems, the SQMD program does not appear to accurately identify minimum wartime requirements.

In order to get an idea of the potential impact of some of these problems, we recomputed the manpower requirements for the Navy's three largest carrier-based squadrons--F-14A, A-7E, and A-6E squadrons--making adjustments to the amounts of the work-load allowances, eliminating the compounding of allowances, and modifying the method of allocating indirect work load. Based on these modifications, it appears that manpower requirements may be overstated by 22 (8 percent) for F-14A squadrons, 28 (10 percent) for A-7E squadrons, and 31 (11 percent) for A-6E squadrons. These findings are projectable to the total number of these squadrons currently in existence; consequently, our results indicate that enlisted manpower requirements may be overstated by almost 1,500 Navy-wide.

The three types of squadrons we examined represent about 20 percent of the total Navy aircraft squadrons. We cannot directly project the results of our analysis to all other Navy aircraft squadrons. However, if the work-load allowance percentages and computational methodology are adjusted, all Navy squadrons will be affected in a manner similar to those we examined.

MARINE CORPS MANPOWER REQUIREMENTS

We are still in the process of gathering information on the Marine Corps manpower-requirements program. Our preliminary findings indicate that this program needs significant improvement.

The Marine Corps uses different approaches to determine requirements for Fleet Marine Force (FMF) units (combat units) and non-FMF units (support type units). With regard to non-FMF requirements, we observed the conduct of an on-site manpower survey of Camp Pendleton. We found that few of the staffing

criteria being applied were based upon accepted work-measurement techniques. We also found that no criteria exist for over one-third of the positions and, even when criteria do exist, analysts apply them in less than 20 percent of the cases.

With regard to the FMF elements, we examined in detail the process and procedures used to establish and validate manpower requirements for the infantry battalion, the basic unit of the ground combat forces. We found the process used to establish the manpower structure to be unsystematic and highly reactive to fiscal and manpower constraints. That is, rather than determining how many positions are needed to perform assigned missions, the Marine Corps starts with an assumption about the size of an infantry battalion and builds the battalion structure to fit that constraint. The danger in this process is that a unit structured in this way may not be able to accomplish its assigned mission responsibilities.

As an illustration of this process, we are now tracing the changes made to the infantry battalion's structure over the past 7 years. In 1979, the Commandant reduced the infantry battalion from 1,192 to 889 position due to fiscal and manpower constraints and directed that a study be conducted to develop an optimum battalion having about 900 marines. Although the study indicated a need for 990 marines, a 916-man structure was proposed. In 1981, it was proposed that the infantry battalion be constrained to 789, although this was later increased to 824. This was done in order to come up with the positions needed to staff the new Light Armored Vehicle battalions. Starting in fiscal year 1986, the structure has again been changed because of concerns being voiced by field commanders that the 824-man structure would not allow them to fulfill their missions. The latest decision has increased the size of the infantry battalion to 867.

Because the Marine Corps manpower-determination system lacks documentation, we are unable to reliably assess the accuracy of Marine Corps requirements. Based on the Marine Corps practice of constraining requirements in order to field new equipment over the past few years, the Marine Corps may have too few combat forces.

Marine Corps officials acknowledged that their manpower-determination process was not as quantitative as the other services, but they were concerned that we were not giving enough credit to the military judgement that goes into determining manpower needs. Without question, such judgements are needed; however, we found that judgements were being applied in an unsystematic fashion and were not sufficiently documented.

ARMY MANPOWER REQUIREMENTS

We conducted some preliminary audit work on the Army's manpower requirements programs in 1983. At that time, we found

the Army in the early stages of a major overhaul of its manpower-determination system in response to earlier GAO reports.¹

The Army uses separate processes for determining manpower needs for deployable and non-deployable units. The Manpower Requirements Criteria (MARC) program is used to determine the number of soldiers needed for combat support and combat service support functions. The requirements generated by this process lead directly into the development of Tables of Organization and Equipment (TOE) and account for about 650,000 military positions (about 57 percent of the Army's active and reserve manpower requirements).

Our 1983 examination of the MARC program found it in the early stages of implementation with complete implementation expected by 1989. Because of the program's status, we did not conduct a detailed review. However, we did express our concern about the methodologies being used to determine work load, nonavailable time, indirect time, and productive work time. (See app. IV for a summary.) We plan to examine the Army's progress in implementing this program in late 1986 or early 1987.

Manpower needs for non-deployable units with peacetime or local support missions are displayed in Tables of Distribution and Allowances (TDA). Unlike TOE units, TDA units also include civilian manpower. Manpower requirements for approximately 400,000 of the Army's 600,000 peacetime TDA requirements are developed and validated under the Manpower Staffing Standards Systems (MS-3).

In 1983, we also found that the Army was then in the early stages of developing and implementing the MS-3 program in response to our earlier recommendations. In a letter to the Secretary of Defense dated August 10, 1983, we raised the concern that the Army's worker-availability factor was 6 to 8 percent lower than that used by the Air Force--137 hours per month compared to 145. (See app. V.) Use of a lower worker-availability factor results in higher manpower requirements because more workers would be needed to accomplish a given amount of work. We have recently been informed that the Army has since increased its worker availability factor to 145 hours per month. We will also reexamine the MS-3 program in late 1986 or early 1987.

¹Continuous Management Attention Needed for Army to Improve Combat Unit Personnel Requirements, GAO/FPCD-78-61, Sept. 5, 1978; Improvements Needed in Army's Determination of Manpower Requirements for Support and Administrative Functions, GAO/FPCD-79-32, May 21, 1979.

Since we have not examined the Army's new manpower management programs in detail, we are unable to comment on the accuracy of the Army's requirements. However, the Army planned to continue its previous manpower-determination programs until the new methods could be put in place. Thus, to the extent that the Army continues to use the previous programs as the basis of its manpower needs, the concerns we identified in our earlier reports would still be relevant. It should also be noted that our recent work in the Army's manpower-requirements area did not look at the combat functions.

AIR FORCE MANPOWER REQUIREMENTS

The Air Force has had a formal manpower-determination program since 1959. Its manpower program, called the "Management Engineering Program (MEP)," uses a variety of techniques to develop manpower standards and document staffing needs. DOD's DOD Manpower Requirements Report: Fiscal Year 1987 states that the MEP has produced staffing standards that cover about two-thirds of current Air Force authorizations.

Air Force staffing standards consist of mathematical equations with variable factors for work-load data. The focus of our work involves validating the work-load data being used in the annual reapplication of the standards. Since this work is still in process, the results described here are only preliminary. It should be noted that we are not finding as high an error rate at the Air Force bases we are sampling now as we did at the bases we sampled earlier. If this continues to be the case, the estimated overstatement of manpower requirements will be lower than what is cited in this report.

Our sampling plan to assess the credibility of Air Force requirements was designed to allow us to project our findings at the 95-percent confidence level to about 70 percent of the total number of Air Force positions covered by standards, or almost 362,000 positions.² Our plan involves sampling at two bases in each of the seven largest Air Force commands. To date, we have

²In on-site validations, we are finding that some of the authorizations which the Air Force told us were covered by standards are actually covered only by guides, which are a less rigorous way of estimating staffing needs. Therefore, the 362,000 target population to which our findings were to be projected is likely to be somewhat lower, although we cannot determine how much lower at this time. In its comments on this report, the Air Force acknowledged the existence of coding errors and stated that it is in the process of reviewing and correcting the codes.

completed our work at nine bases and are in the process of completing our work at five other bases. Our preliminary results indicate a net overstatement of 5.41 percent, plus or minus 2.86, for total requirements and 3.68 percent, plus or minus 1.75, for funded requirements. Applying the low end of each of these ranges to the target population results in an estimated overstatement of 9,224 total requirements and 6,981 funded requirements across the seven commands.

A 1985 Air Force Audit Agency (AFAA) report found similar problems with the accuracy of work-load data. AFAA judgmentally selected a sample of 105 work centers (which were covered by 30 standards) in two major commands--the Military Airlift Command and the Tactical Air Command. They found manpower requirements misstated at 51 of the 105 work centers. As a result, staffing requirements were overstated by 128 positions (94 of which were funded) and understated by 28 positions. The net 100 overstated positions represented a 6.3-percent overstatement. AFAA computed the annual salary cost of the 94 funded overstated positions to be \$1.7 million.

Based on our preliminary results and the findings of the Air Force Audit Agency, Air Force requirements appear to be somewhat overstated as a result of inaccurate work-load data being used in the annual application of staffing standards.

Air Force officials noted that, based on the Air Force Audit Agency findings, the Air Force has tightened its policy on work-load data verification. They believe that this may account for the lower incidence of work-load errors we are finding in our more recent work.

Air Force officials also noted that they are incorporating DOD's efficiency review program (aimed at identifying unnecessary, duplicative, or inefficient activities) into their manpower-requirements process. These reviews are expected to cover about 600,000 authorizations by fiscal year 1990 and result in an estimated 6-percent reduction in requirements and a 3-percent reduction in authorizations, which the Air Force plans to use to satisfy priority requirements.

VIEWS OF AGENCY OFFICIALS

While we did not get DOD's official views on this report, we did discuss a draft with officials from the Office of the Secretary of Defense and the military services. Overall, DOD stated that the military services have active programs for measuring and identifying their manpower requirements. While DOD recognizes that some problems do exist and some refinements could be made, it believes that the services' processes for determining manpower requirements are basically very good.

Digest of Navy Manpower Management: Continuing Problems
Impair the Credibility of Shore Establishment Requirements
(GAO/NSIAD-85-43)

D I G E S T

Over two-thirds of the Navy's military and civilian work force, costing over \$12 billion, are in shore-based jobs. Having the right number and kinds of people to do these jobs is important because not having enough workers could affect military capability while having too many would be unnecessarily costly. The Congress has on several occasions prodded the Navy to develop a more rigorous and credible system to justify its shore-based manpower needs. A manpower-planning system based on the work measurement techniques successfully used in private industry would be responsive to congressional desires.

In response to congressional concerns, the Navy has been developing a system for determining and justifying its total shore-based manpower requirements since 1972. This system, known as SHORSTAMPS (Shore Requirements, Standards, and Manpower Planning System), was officially adopted in March 1976. In December 1983, SHORSTAMPS became a component of the newly formed Navy Manpower Engineering Program (NAVMEP), the aggregate name given after several existing manpower programs were incorporated under one umbrella program.

GAO conducted this review in order to provide an assessment of the Navy's progress toward implementing SHORSTAMPS. Specific objectives were to assess whether improvements have been made in

- the Navy's shore-based manpower management,
- the accuracy of workload data, and
- the oversight of manpower planning at the Chief of Naval Operations (CNO) and Command headquarters and of the application and use of staffing standards at the unit (user) level.

GAO did not address the accuracy of the mathematical algorithms used in the staffing standards nor the technicalities of any individual standards.

Although the Navy has made progress in managing its shore-based manpower by adopting work measurement concepts and methods, SHORSTAMPS and NAVMEP fall short of meeting congressional expectations for rigor and credibility. This is due primarily to the Navy's lack of oversight of manpower planning and to various continuing technical problems, such as budgeting, personnel, procedures, and data. In GAO's opinion, correcting the technical problems alone will not be sufficient to result in increased use of staffing standards. (See pp. 25-26, 35-41.) GAO believes that the key reason manpower standards are not used is the absence of monitoring and enforcement at all levels.

CONTINUING PROBLEMS DELAY SHORSTAMPS
DEVELOPMENT, USE, AND ACCEPTANCE

SHORSTAMPS calls for the application of work measurement techniques to determine total manpower requirements--military, civilian, and contractor--for the shore establishment. A 1980 GAO report on SHORSTAMPS found a number of problems. (See pp. 54-57.) The current review found that many of those problems continue to exist:

- Most of the Navy's shore manpower is not covered by SHORSTAMPS standards. The Navy's shore-based authorizations total approximately 600,000. By August 1983, approved SHORSTAMPS standards reports existed for only about 217,500 of those authorizations. (See p. 8.)
- Some contributors to the Navy's slow rate of progress toward achieving coverage of the shore establishment include (1) erratic budgeting of the program, (2) poor and unusable contractor products, and (3) little emphasis on managing and retaining trained analysts. (See pp. 8-12.)
- While the Navy has recognized the importance of performing methods-improvement studies--which involve examinations of actual work processes and workflows in order to identify

unnecessary, duplicative, or inefficient procedures--and intended to perform them during the standards-revision phase, these studies are still not being performed. (See pp. 12-13.)

- The Shore Required Occupational Capability (SHOROC) subsystem of SHORSTAMPS contains current and future workload projections submitted by individual shore activities. Although these workload projections are an important determinant of manpower requirements, none of the major commands GAO visited was ensuring that the SHOROC values submitted by activities were accurate. GAO tested the accuracy of the SHOROC subsystem data inputs for workload projections at 23 Navy activities. GAO was unable to verify 40 percent of the values because no audit trail existed. For the values able to be checked, a 48-percent error rate was found, including both understatements and overstatements of workload. The Navy Manpower Requirements System was used to assess the effect of the erroneous values on the 57 functions to which they applied. The use of the erroneous workload projections resulted in an overstatement of manpower requirements in 16 cases and understatements in 19 cases, and had no effect in 22 cases. (See pp. 13-18.)
- Although 72 standards reports had been approved for use by early FY 1983, four of the five major commands GAO visited were not using the system in accordance with the approved implementation instruction. The problems found included commands believing that the implementation of standards was optional, not using standards to manage civilian manpower authorizations, not considering all available manpower alternatives, and not reapplying standards annually. (See pp. 18-23.)
- Impediments to the use of standards included perceptions that (1) some standards were inaccurate, (2) automated capability was needed to relate SHORSTAMPS requirements to authorizations, and (3) since using standards was not an essential element of budget success, there was no incentive to use SHORSTAMPS. (See pp. 23-25.)

NAVMEP MAY NOT IMPROVE
NAVY MANPOWER MANAGEMENT

Because the Navy was dissatisfied with SHOR-STAMPS, it approved in December 1983 an alternative, the Shore Manpower Documents (SHMD) program, which is incorporated under an umbrella program called the Navy Manpower Engineering Program (NAVMEP). The Navy expects NAVMEP to provide improved manpower planning by consolidating all of Navy's existing manpower determination programs and modifying the standards-development process in order to achieve 100-percent coverage in 2 years. (See pp. 28-30.)

But will NAVMEP be better? GAO believes that NAVMEP's potential is endangered by methodological weaknesses and budget instability. (See pp. 30-33.) Technical problems which GAO believes threaten the success of NAVMEP include the following:

- The modifications which NAVMEP is planning to make to the standards-development process are likely to sacrifice accuracy and efficiency in the interest of meeting the timetable.
- The planned use of macro-models, which identify manpower requirements based on an aggregate measure of workload, is likely to decrease the accuracy and credibility of manpower requirements. Previous studies by GAO, the Navy, and the Department of Defense (DOD) have identified numerous problems with the work measurement systems and data bases which are used by the macro-models. (See pp. 31-32.)
- The use of so-called engineered estimates and "proxies" as a substitute for standards in order to achieve full coverage within 2 years could discredit the entire program because they are not based on accepted work measurement techniques. (See p. 32.)

TECHNICAL PROBLEMS AFFECTING
SHORSTAMPS AND NAVMEP NEED
TO BE CORRECTED

To address the many technical problems cited above, GAO makes a number of recommendations concerning

- providing funding stability for the staffing-standards program,
- establishing a manpower-management career field,
- reconsidering the use of macro-models by NAVMEP,
- avoiding the use of potentially misleading terminology,
- performing methods-improvement studies,
- providing adequate resources for incorporating methods-improvement studies into the standards-development process,
- ensuring the accuracy of workload parameter values, and
- eliminating impediments to the use of standards. (See pp. 37-40.)

THE PRIMARY PROBLEM WITH THE NAVY'S
SHORE MANPOWER PROGRAM IS THE ABSENCE
OF MONITORING AND ENFORCEMENT

While conceptually both SHORSTAMPS and NAVMEP appear sound, in practice they fall short. However, GAO believes that these programs are better than no system at all and ought to be improved rather than abandoned.

GAO found that, although SHORSTAMPS and NAVMEP both have a number of defects, the key problem has been the absence of monitoring and enforcement. GAO believes that the Navy should require the use of staffing standards to determine and manage shore manpower in accordance with CNO promulgation and implementation instructions. GAO therefore recommends that the Secretary of the Navy direct the CNO to require commands to

- certify that they have reprogrammed authorizations and resources (both military and civilian) to conform to requirements generated by approved SHORSTAMPS standards;

- submit SHORSTAMPS justifications for any manpower increases requested in any function for which an approved SHORSTAMPS standard exists;
- certify that they have reapplied all applicable standards before each budget cycle; and
- maintain local records to support and document the initial application and periodic reapplications of the standards. (See p. 36.)

GAO also recommends that the Secretary of the Navy direct the CNO to

- assign explicit responsibility and authority for monitoring and enforcing the use of manpower standards. (See p. 36.)

With regard to NAVMEP, GAO is concerned that the use of less rigorous standards determination processes in the interest of rapidly increasing coverage and gaining user acceptance may compromise the credibility of the program and its objectives. GAO therefore recommends that the Secretary of the Navy

- establish a program to systematically examine for soundness/rigor all standards, methodologies, and processes to be used by NAVMEP to determine manpower requirements, and
- introduce acceptable work measurement techniques where feasible. (See p. 37.)

AGENCY COMMENTS
AND GAO'S EVALUATION

DOD provided GAO with official comments on a draft of this report. (The full text of DOD's comments is in app. V beginning on p. 58.) These comments have been incorporated as appropriate. Defense generally agreed with the findings of this report, and outlined Navy actions to address most of the problems. (See pp. 26-27, 33-34, and 40-42.)

DOD did disagree with GAO's recommendation that a career field for military personnel in the area of manpower management be established. DOD believes that Navy's current system using subspecialty and secondary skill designators

allows them to develop and utilize sufficient manpower-management expertise. DOD also stated that the amount of retouring that can be accomplished is limited because many of the personnel working in the manpower area have primary skills that are in demand in the fleet. (See pp. 26-27 and 42.)

GAO believes that the establishment of a manpower-management career field would benefit the Navy by providing career incentives necessary to attract and retain quality personnel in the manpower area, increasing the professionalism of Navy manpower managers, and reducing the number of personnel with high-demand operational skills that are diverted into manpower-management jobs. (See pp. 26 and 42.)

Executive Summary of Navy Manpower: Improved Ship Manpower
Document Program Could Reduce Requirements
(GAO/NSIAD-86-49)

EXECUTIVE SUMMARY

Navy personnel will cost almost \$34 billion in fiscal year 1987, a third of the Navy's budget. At the request of the Chairman, House Committee on Armed Services, GAO is reviewing the process the Navy uses to determine its manpower needs. This report is concerned with one part of that process--the Ship Manpower Document (SMD) program, which determines ship-manpower requirements.

This report examines whether the SMD program has the necessary rigor and realism to accurately identify the minimum number and grade levels of enlisted positions in each occupational group that would be needed aboard surface ships at sea in wartime.

BACKGROUND

The Navy established the SMD program in 1966. At the end of fiscal year 1984, the program covered 91 percent of all active Navy surface ships, establishing requirements for an estimated 171,000 positions.

In implementing the SMD program, the Navy uses a manpower modeling system whereby a ship's required combat capability and basic assumptions about how the Navy plans to operate in wartime is translated into a conceptual model which, in turn, is simulated on computers. As input to the conceptual model, the Navy uses the ship work load (the operational and maintenance tasks which assigned ship personnel would have to perform in wartime) and staffing standards (the amount of time and skills needed to perform these tasks). The resulting outputs are known as ship-manpower requirements.

RESULTS IN BRIEF

The number of enlisted positions the Navy says it needs to operate and maintain its surface ships is questionable because of the lack of rigor in the methodology the Navy uses to measure work load and to establish

and validate standards, the lack of realism in some of the assumptions incorporated by the SMD model, and the failure to maintain documentation.

The degree of inaccuracy of the Navy's manpower requirements, and the impact of this inaccuracy on ship operations and the Navy's budget, is hard to determine precisely. However, GAO's review, as well as several past studies, indicates that some requirements are underestimated, decreasing readiness, and that others are overestimated, increasing costs. On balance, the net effect appears to be an overstatement of needs.

PRINCIPAL FINDINGS

Methodology lacks rigor

The current requirements generated by the SMD program lack credibility for three major reasons. First, the methodology of the SMD program lacks the necessary rigor. In measuring work load and setting standards, for example, SMD analysts seldom observe the work actually being done, and they make no methods-improvement studies (examinations of actual work in order to identify unnecessary, duplicative, and inefficient procedures). Consequently, most of the current standards are unconfirmed reflections of what ship personnel say they do and may not reflect what they would do if they were working as efficiently as practical. (See ch. 2.)

SMD Model Needs Refinement

Second, the SMD system does not meet recognized criteria for sound modeling. Most seriously, it does not always correspond to the reality being modeled. (See ch. 3.) After reviewing the enlisted manning requirements for two destroyers, GAO found that changing the SMD system to better reflect how the Navy operates and plans to operate in wartime could result in reduced requirements for these two ships. (See ch. 4.)

Little documentation for current standards exists

Third, insufficient documentation exists to support the initial establishment of the standards or the changes that have since been made to them. Also, the documentation for the SMD modeling system or for changes that have been made to it is insufficient. As a result, errors are difficult to detect and correct. (See pp. 17 to 19, 22 to 23, and 50 to 51.)

RECOMMENDATIONS

GAO supports the Navy's efforts to establish reliable manpower requirements and believes that the SMD program provides the basic foundation to accomplish this goal. However, GAO believes that a number of aspects of this program need to be reexamined and revalidated. Accordingly, GAO makes a number of recommendations to the Secretary of the Navy. (See pp. 39 and 54.) The most important of these are summarized below:

- Require that standards be established and validated through as rigorous a process as practical, including direct observations of work actually being performed or simulated.
- Require that methods-improvement studies be conducted where practical and feasible before establishing and validating standards.
- Adjust the SMD conceptual model so that it more accurately reflects how the Navy plans to operate during wartime.
- Ensure that the basis for the standards and the SMD modeling process are adequately documented and that a proper audit trail of changes is maintained.

AGENCY COMMENTS
AND GAO EVALUATION

DOD provided GAO with official comments on a draft of this report. (The full text of DOD's comments is in app. III, beginning on p. 72.) These comments have been incorporated as appropriate. In general, DOD either agreed or partially agreed with most of the findings of this report, and Navy actions to address most of the problems were outlined. While DOD disagreed with some of the specifics of GAO's recommendations, it did agree to improve the documentation supporting the program and to study or revalidate many of the program's assumptions and allowances.

Also, while agreeing that implementing GAO's recommendations could reduce manpower requirements, DOD was concerned that this reduction cannot be translated into end-strength or budget reductions. DOD's basis is that it has never received full funding of its requirements. While a one-to-one

correlation between reduced requirements and the budget or end strength may not be possible, GAO believes that reducing requirements can lead to savings. DOD's annual budget request is based on the requirements that the SMD program and other systems determine. More accurate requirements could result in lower budget requests because the calculated shortfall--requirements minus budget request--would be smaller, or resources could be better allocated to areas with the greatest valid need. The Congress also uses the services' statements of requirements in evaluating DOD's budget request.

Cover Letter for Observations on the Army's Manpower
Requirements Criteria Program
(GAO/NSIAD-84-78)



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-214654

MAR 2 1984

The Honorable Delbert L. Spurlock
The Assistant Secretary of the Army
(Manpower and Reserve Affairs)

Attention: The Inspector General
DAIG-AI

Dear Mr. Spurlock:

Subject: Observations on the Army's Manpower Requirements
Criteria Program (GAO/NSIAD-84-78).

The purpose of this letter is to close out our survey (code 967115) of the Army's Manpower Requirements Criteria (MARC) program. MARC is the process used by the Army to determine the number of soldiers needed to perform combat support and combat service support functions in deployable units. While it is too early in the implementation of MARC to draw a final conclusion, we have some observations resulting from our survey work that we feel are important to bring to your attention.

We initiated our survey because this program leads directly into the development of Tables of Organization and Equipment for combat units which ultimately has a direct effect upon the programming and budgeting of 650,000 positions, about 57 percent of total Army manpower requirements. Compensation costs alone for personnel who would fill positions determined by

¹In the context of military personnel management, "manpower" connotes requirements or billets (positions), whereas "personnel" connotes individuals.

B-214654

the MARC program comprise \$9.4 billion² of the Army's military personnel budget. Through its role in determining the number of personnel in combat units, MARC also has an indirect impact upon the budgetary requirements for noncombat personnel, both military and civilian.

We were also concerned with the MARC program because GAO³ and Army reviews of MARC's predecessor, the Manpower Authorization Criteria (MACRIT) program, found a number of serious problems. Those problems caused Army's manpower planning to lack reliability and credibility. The Army concurred with the findings of the reviews.

The importance of having an effective manpower requirements system should be readily apparent. For example, even a one percent error could be very costly in terms of efficiency or effectiveness. If overstated, \$94 million in unnecessary costs would be expended. If understated, 6,500 personnel needed for combat support and combat service support would not be available to provide needed functions in deployable units.

Our examination revealed that initiatives to implement MARC are in the early stages, and while we are encouraged by these initiatives, we believe that if MARC is to become a reliable and credible manpower requirements determination program, the Army's development efforts need to be improved. While we found a number of problems with specific components of MARC, we believe these problems are symptomatic of a larger problem, the lack of adequate planning.

Without adequate planning, the ultimate ability of MARC to reliably determine vital combat support personnel requirements is doubtful. The Army also cannot assure the reliability of

²This estimate is based on an average compensation cost of \$14,416 per enlisted soldier. The average compensation includes: basic pay, basic allowances for quarters, variable housing allowances, subsistence, special pays and incentive pays such as hazardous duty and aviation career pay. These pays are identified in the "Department of the Army Justification of Estimates for Fiscal Year 1984", pp. 12-13. This figure does not include "cost-of-doing business" items such as uniform allowances and housing reimbursements or federal tax advantages.

³"Continuous Management Attention Needed for Army to Improve Combat Unit Personnel Requirements" (FPCD-78-61, Sept. 5, 1978). Problems addressed in this report still pertain because MACRIT standards are continuing to be used while MARC is being developed.

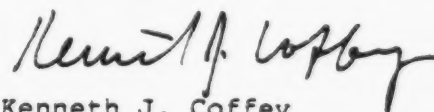
B-214654

milestones established and estimates of persons needed to complete and implement the program. Comprehensive and rigorous planning will assure the Army and the Congress that actions to improve MARC are effective, efficient, and worth supporting.

In view of its potential impact on mission effectiveness and the Army's personnel budget, we hope that the Army will develop a comprehensive and rigorous plan encompassing both the overall program and each functional area--not just Problem Analysis Papers-- before continuing any long term efforts to improve MARC. Our concerns with specific components of MARC are discussed in more detail in the enclosure.

We would appreciate being advised of your reaction to our concerns, and of any actions you plan to take. We would, of course, be pleased to meet with your staff to discuss our concerns more fully. Because the absence of a fully developed MARC is causing both the collection and use of unreliable manpower requirements data, as well as unnecessary expenditures for obtaining it, we will continue to monitor the Army's progress by conducting subsequent reviews of MARC as final data becomes available. We also will be reviewing the related Manpower Staffing Standards System.

Sincerely yours,



Kenneth J. Coffey
Associate Director

Closeout Letter for GAO's Survey of the Army's Manpower
Staffing Standards System (MS-3) Program



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

10 AUG 1983

The Honorable Caspar W. Weinberger
The Secretary of Defense

Attention: DOD Office of the Inspector General
Deputy Assistant Inspector General for
GAO Report Analysis

Dear Mr. Secretary:

The U.S. General Accounting Office is discontinuing its survey of the Army's Manpower Staffing Standards System (MS-3) program, code 967113. This action is being taken because the program is still largely in its development stage and it is too early to evaluate its effectiveness. While we urge your attention to two issues, we found that the Army's actions to date have been very responsive to previous GAO recommendations.

The objective of the survey was to ascertain and evaluate the Army's progress in correcting deficiencies in its system for determining manpower requirements for Table of Distribution and Allowances (TDA) type units. GAO reported in 1979 (FPCD-79-32) that the Army did not have a credible system for determining TDA manpower requirements and recommended that the Army

- design and implement a manpower requirements system that includes staffing standards developed through work measurement techniques and methods studies conducted prior to standards development;
- adopt an organizational structure that combines manpower-related responsibilities into one organization at all levels, with centralized policy and direction;
- assure that staffing standards can be developed at a summary level and that the standards enable tying manpower requirements to budget requests; and
- have a management information system that uses a common data base for manpower requirements, costs, budgets, and management.

In other reports, GAO pointed out the Army's need to (1) develop more reliable, worker availability factors (FPCD-78-21), (2) use civilians to develop staffing standards (FPCD-77-72), and (3) establish an officer career field in manpower management (FPCD-80-9).

Our survey showed that the Army has initiated or plans to take actions to address all the above recommendations and is in the process of putting its new manpower requirements system together. Overall, we found the Army's actions and plans with regard to manpower requirements determination for TDA units to be highly responsive to the recommendations we have made in past reviews. While it is too early to render a definitive assessment of the new MS-3 program, we believe the Army is headed in the right direction. Nonetheless, we expect to reexamine this area in a couple of years.

While we were pleased with most of what we found during this survey, we are concerned about two issues--potential duplication of training and lower worker availability factors.

During our survey we noted that Army plans to establish a 7-week MS-3 program training course that will duplicate much of the content of both an existing 5-week course and a planned 3-week course related to staffing standards.

The Army's 5-week Defense Work Methods and Standards course provides training in reviewing production and performance efficiency and in setting production and performance standards. The course is oriented towards a Comptroller of the Army efficiency review program, and the course content includes developing staffing standards by using work measurement techniques. The Army plans to add a 3-week, follow-on efficiency review course on methods and standards. The 7-week MS-3 course and the other two courses all cover making efficiency reviews and establishing staffing standards, although the efficiency program's courses go beyond manpower efficiency and standards.

The field people conducting the efficiency reviews will do so from the perspective of both the efficiency review program and the MS-3 program. As a result, many reviewers will likely attend both programs' training courses and receive significant duplicative training. Officials at the Army Material Development and Readiness Command, which is responsible for the efficiency program courses, commented on the planned MS-3 course by noting that it duplicates existing courses and recommended not establishing the MS-3 course if existing courses could meet MS-3 needs. In its report to the Army, the contractor that developed the MS-3 course program of instruction noted that course development for the two programs needs to be closely coordinated, if not integrated. MS-3 program officials consider the new course necessary for adequate MS-3 training and in January 1984, plan to go ahead with it. They said they would avoid redundant

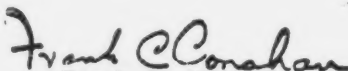
training by establishing training tracks and sending people to the appropriate tracks based on their prior training and experience.

For these reasons, we believe that your decision to establish the 7-week MS-3 training program merits reconsideration. If you agree, you may wish to consider the development of other, non-duplicative means of assuring that adequate training is available for both the efficiency review and the MS-3 programs. For example, one viable solution may be a modularized course that satisfies the needs of both programs. For a given class of students, the instructor at the training school could teach only the modules needed by that group.

The second issue that concerns us involves the Army's worker availability factors. A study of TDA worker availability has recently been completed by a contractor. The data indicated a lower time availability than the Army had been using. The contractor also noted that the Army's military availability factors were 6 to 8 percent lower than the Air Force's factors and suggested that the Army allow less time for organizational duties and training activities than what TDA units were presently using. Because of the large impact which worker availability has on manpower requirements, we would also urge the Army to examine the necessity for those activities which lower worker availability.

We thank the Army for its cooperation and assistance in helping carry out this survey and for the courtesies extended to our staff. If you have any further questions, please contact Dr. William E. Beusse at 275-5140.

Sincerely yours,


Frank C. Conahan
Director

cc: The Secretary of the Army

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